

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	29	(document near3 edit\$3) and (dtd near3 compl\$5) and element	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:42
L2	1	(document near3 edit\$3) same (dtd near3 compl\$5) and element and automata	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:43
L3	0	(document near3 edit\$3) same (dtd near3 compl\$5) and element and fsa	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:44
L4	5	(document near3 edit\$3) same (dtd near3 compl\$5) and element and state	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:55
L5	1	(document near3 edit\$3) same ((dtd near3 compl\$5) or "model checker") and element and (fsa or automata)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:56
L6	5	(document near3 edit\$3) same ((dtd near3 compl\$5) or "model checker") and element and (fsa or automata or state)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:56
L7	5	(document near3 edit\$3) same ((dtd near3 compl\$5) or "model checker" or (spin near5 verification)) and element and (fsa or automata or state)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:57
L8	19	(document near3 edit\$3) same (((dtd or schema) same compl\$5) or "model checker" or (spin same verification)) and element and (fsa or automata or state)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:13
L9	16488	(dtd or schema or spin) same (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:16

EAST Search History

L10	440	(dtd or schema or spin) same (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") same element same (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:16
L11	17	((dtd or schema or spin) near5 (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker")) near5 (fsa or automa\$2 or state or graph\$3) same element	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:17
L12	17	l11 not l8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:30
L13	100	708/420.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:31
L14	1	708/420.ccls. and (dtd or schema or spin) and (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:32
L15	0	708/421.ccls. and (dtd or schema or spin) and (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:32
L16	0	708/440.ccls. and (dtd or schema or spin) and (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:32
L17	1	708/42?.ccls. and (dtd or schema or spin) and (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:33
L18	609	715/513.ccls. and (dtd or schema or spin) and (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:34
L19	67	715/530.ccls. and (dtd or schema or spin) and (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:34

EAST Search History

L20	4	717/112.ccls. and (dtd or schema or spin) and (compl\$5 or verif\$7 or valid\$5 or correct\$4 or "model checker") and element and (fsa or automa\$2 or state or graph\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 08:34
S1	545	(xml or ml or dtd or schema) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 15:32
S2	455	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 16:01
S3	33	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint) and "regular expression"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 15:34
S4	0	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint) and ((edges and states) near5 element)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 15:35
S5	0	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint) and ("set of states") near5 element	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 15:36
S6	484	glushkov	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 15:36
S7	1	glushkov and edges and "regular expression"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 15:36
S8	4	glushkov and edges and states	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 15:36
S9	0	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint) and (tree near5 automata)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 16:01

EAST Search History

S10	208	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint) and tree and states	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 16:03
S11	89	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint) and tree and states and (regular or grammar or automata)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 16:07
S12	89	(xml) near5 ("document editor" or editor) and (comply\$3 or compliance or valid\$3 or correct\$2 or guidance or hint) and tree and states and (regular or grammar or automata)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 17:00
S13	0	rita and dtd same compliant	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 17:01
S14	0	(cowan and mackie).in. and dtd same compliant	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/21 07:38
S15	0	(cowan and mackie).in.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 17:02
S16	0	(pianosi and smit).in.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/20 17:02

[Sign in](#)[Google](#)[Web](#) [Images](#) [Video](#) [News](#) [Maps](#) [more »](#)[Ac](#)
[Pr](#)

The "AND" operator is unnecessary -- we include all search default. [\[details\]](#)

Web Results 1 - 10 of about 11,100 for glushkov and finite automata. (0.22

Regular Expressions into Finite Automata - Bruggemann-Klein ...

The **Glushkov automaton** that corresponds to a regular expression is used for checking ... 0.3: A Taxonomy of Finite Automata Construction Algorithms - Watson ...

citeseer.ist.psu.edu/398430.html - 24k - [Cached](#) - [Similar pages](#)

Regular Expressions into Finite Automata - Bruggemann-Klein ...

Regular expressions into **finite automata**. To appear in the conference proceedings of ... 29 Russian Mathematical Surveys (context) - **Glushkov**, theory - 1961 ...

citeseer.ist.psu.edu/328014.html - 19k - [Cached](#) - [Similar pages](#)

[[More results from citeseer.ist.psu.edu](#)]

[DOC] Regular Expressions into Finite Automata

File Format: Microsoft Word - [View as HTML](#)

The second issue is building the **Glushkov automaton** in $O(\text{size of } E)$ for ...

If E is deterministic, then the deterministic **finite automaton** ME can be ...

webcourse.cs.technion.ac.il/236826/Spring2005/ho/WCFiles/Regular%20Expressions%20into%20Finite%20Automata.doc - [Similar pages](#)

→ From regular expressions to finite automata

There are three classical algorithms to compute a **finite automaton** from a ...

The Brzozowski algorithm yields a deterministic **automaton**, the **Glushkov** ... cat.inist.fr/?aModele=afficheN&cpsidt=1242385 - [Similar pages](#)

Regular expressions into finite automata

Regular expressions into **finite automata**. A BRÜGGERMANN-KLEIN ... Moreover, the **Glushkov** construction also plays a significant role in the document ...

cat.inist.fr/?aModele=afficheN&cpsidt=3972312 - [Similar pages](#)

[PDF] On the imbedding of asynchronous automata into a product of finite ...

File Format: PDF/Adobe Acrobat

OF FINITE. **AUTOMATA**. E'. A. Vartapetov. UDC 51:621.391. In the well-known monograph by V. M. **Glushkov** [1] various devices for constructing real **automata** ...

www.springerlink.com/index/P6RM420183001326.pdf - [Similar pages](#)

Canonical derivatives, partial derivatives and finite automaton ...

8 {8} V.M. **Glushkov**, The abstract theory of **automata**, Russian Math. ... nerve nets and **finite automata**, **Automata** Studies Annals of Mathematics Studies Vol. ...

portal.acm.org/citation.cfm?id=637768&dl=ACM&coll=&CFID=15151515&CFTOKEN=6184618 - [Similar pages](#)

Informal Essays: Iterated Finite Automata

And in fact, such iterated **finite automata** seem like a rather nice systems, ... (Grigorchuk says that Victor **Glushkov**---who was a major wheel in Soviet ... www.stephenwolfram.com/publications/informal essays/iterated finite/ - 22k - [Cached](#) - [Similar pages](#)

Finite-state automata and directed acyclic graphs

The **Glushkov** or McNaughton-Yamada construction produces smaller **automata**. ... Bruce W. Watson, A Taxonomy of **finite automata** minimization algorithms, ...

odur.let.rug.nl/alfa/fsa_stuff/ - 93k - [Cached](#) - [Similar pages](#)

[PDF] A Unified Construction of the Glushkov, Follow, and Antimirov ...

File Format: PDF/Adobe Acrobat - [View as HTML](#)

Regular expressions into **finite automata**. Theoretical Computer Science, 120(2):197–213, 1993. S. P. Caron and M. Flouret. **Glushkov** construction for ...

 cs.nyu.edu/web/Research/TechReports/TR2006-880/TR2006-880.pdf - [Similar pages](#)

Result Page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [Next](#)

Try [Google Desktop](#): search your computer as easily as you search the web.

[Search within results](#) | [Language Tools](#) | [Search Tips](#) | [Dissatisfied? Help us improve](#)

[Google Home](#) - [Advertising Programs](#) - [Business Solutions](#) - [About Google](#)

©2006 Google



[Subscribe \(Full Service\)](#) [Register \(Limited Service\)](#)
Search: The ACM Digital Library The Portal

THE GUIDE TO COMPUTING LITERATURE

[Feedback](#) [Report a problem](#)

Descriptional complexity of finite automata: concepts and open problems

Source [Journal of Automata, Languages and Combinatorics archive](#)

Volume 7, Issue 4 (September 2002) [table of contents](#)

Third international workshop on descriptional complexity of automata and related structures

Pages: 519 - 531

Year of Publication: 2002

ISSN:1430-189X

Author [Juraj Hromkovič](#) Lehrstuhl für Informatik I, RWTH Aachen, Ahornstraße 51, 5205 Aachen, Germany

Publisher Otto-von-Guericke-Universität Magdeburg, Germany, Germany

Additional Information: [abstract](#) [references](#) [citations](#) [index terms](#) [collaborations](#) [similar articles](#)

Tools and Actions: [Find similar Articles](#) [Review this Article](#)
[Save this Article to a Binder](#) [Display Formats: BibTeX](#)

↑ ABSTRACT

"Automata theory is not over" is the message of this paper. But if one wishes to continue with automata theory, then one should prefer to return to the investigation of the fundamental problems of automata theory rather than searching for new applications and developing questionable modifications of basic models. We argue for this opinion here and show that this could lead to a renaissance of automata theory.

↑ REFERENCES

Note: OCR errors may be found in this Reference List extracted from the full text. The author has opted to expose the complete List rather than only correct and linked references.

- 1 {1} H.N. ADORNA, 3-Party message complexity is better than 2-party on bounds on the size of minimal nondeterministic finite automata. In: Proc. 3rd. Descriptional Complexity of Automata, Grammars and Related Structures. Pr Magdeburg, 2001, 23-34.
- 2 {2} H.N. ADORNA, Some properties of k-party message complexity. Unp RWTH Aachen, 2002. (Accepted for DLT '02.)
- 3 {3} R. BOOK, S. EVEN, S. GREIBACH, G. OTT, Ambiguity in graphs a Transactions Comput.20 (1971), 149-153.
- 4 Piotr Berman, A Note on Sweeping Automata, Proceedings of the 7th Coll Languages and Programming, p.91-97, July 14-18, 1980
- 5 Anne Brüggemann-Klein, Regular expressions into finite automata, Theor Science, v.120 n.2, p.197-213, Nov. 22, 1993
- 6 Pavol Duris , Juraj Hromkovic , José D. P. Rolim , Georg Schnitger, Las V Determinism for One-way Communication Complexity, Finite Automata, and Computations, Proceedings of the 14th Annual Symposium on Theoretical As Science, p.117-128, February 27-March 01, 1997
- 7 {7} A. EHRENFEUCHT, P. ZEIGER, Complexity measures for regular e: System Sci.12 (1976), 1-36.
- 8 {8} V. GEFFERT, personal communication.
- 9 Ian Glaister , Jeffrey Shallit, A lower bound technique for the size of nond automata, Information Processing Letters, v.59 n.2, p.75-77, July 22, 1996
- 10 Jonathan Goldstine , C. M. R. Kintala , Detlef Wotschke, On measuring r regular languages, Information and Computation, v.86 n.2, p.179-194, June 1'
- 11 {11} V.M. GLUSHKOV, The abstract theory of automata. Russian Math 53 (translation from Usp. Math. Nank16 (1961), 3-41).
- 12 Jonathan Goldstine , Hing Leung , Detlef Wotschke, On the relation betw nondeterminism in finite automata, Information and Computation, v.100 n.2,
- 13 John E. Hopcroft, An n log n algorithm for minimizing states in a finite a

University, Stanford, CA, 1971

14 John E. Hopcroft , Jeffrey D. Ullman, Introduction To Automata Theory, Computation, Addison-Wesley Longman Publishing Co., Inc., Boston, MA, 1

15 J. Hromkovič, Communication complexity hierarchy, Theoretical Computer Science, p.109-115, Dec., 1986

16 Juraj Hromkovič, Communication complexity and parallel computing, Springer-Verlag New York, Inc., Secaucus, NJ, 1997

17 Juraj Hromkovic , Georg Schnitger, On the power of Las Vegas II: two-way communication complexity, OBDDs, and finite automata, Theoretical Computer Science, v.262 n.1-2, p.1-24, July 2001

18 Juraj Hromkovič , Georg Schnitger, On the power of Las Vegas for one-way communication complexity, OBDDs, and finite automata, Information and Computation, v.166 n.1, p.1-24, September 15, 2001

19 Juraj Hromkovic , Juhani Karhumäki , Hartmut Klauck , Georg Schnitger, Measures of Nondeterminism in Finite Automata, Proceedings of the 27th International Conference on Automata, Languages and Programming, p.199-210, July 09-15, 2000

20 Juraj Hromkovič , Sebastian Seibert , Thomas Wilke, Translating regular languages into ϵ -free nondeterministic finite automata, Journal of Computer and System Sciences, v.61 n.3, p.568-588, June 2001

21 {21} D.A. HUFFMAN, The synthesis of sequential switching circuits. J. of the Franklin Institute (1954) 3/4, 161-190 and 257-303.

22 Tao Jiang , B. Ravikumar, Minimal NFA problems are hard, SIAM Journal on Computing, v.22 n.6, p.1117-1141, Dec. 1993

23 {23} G. JIRÁSKOVÁ, Finite automata and communication protocols. In MITRANA (eds.), Words, Sequences, Grammars, Languages: Where Biology and Mathematics Meet II, to appear.

24 Hing Leung, Separating Exponentially Ambiguous Finite Automata from Ambiguous Finite Automata, SIAM Journal on Computing, v.27 n.4, p.1073-1094, April 1998

25 {25} H. LEUNG, Tight lower bounds on the size of sweeping automata. .

Sciences, to appear.

- 26 {26} Y. LIFSHITS, A lower bound on the size of ϵ -free NFA correspond expression. Manuscript, St. Petersburg, State University, 2002.
- 27 {27} G.M. MEALY, A method for synthesizing sequential circuits. Bell Journal34 (1955) 5, 1045-1079.
- 28 {28} A. MEYER, M. FISCHER, Economy in description by automata, g systems. In: Proc. 12th SWAT Symp. 1971, 188-191.
- 29 {29} S. MICALI, Two-way deterministic automata are exponentially more sweeping automata. Inform. Proc. Letters12 (1981), 103-105.
- 30 {30} R.F. MCNAUGHTON, M. YAMADA, Regular expressions and state IRE Trans. Electron. Comput.9 (1960), 39-47.
- 31 {31} E.F. MOORE, Gedanken experiments on sequential machines. In: {
- 32 {32} F. MOORE, On the bounds for state-set size in the proofs of equivalence of deterministic, nondeterministic and two-way finite automata. IEEE Trans. Comput.12, 1214.
- 33 {33} A. MUSCHOL, personal communication.
- 34 B. Ravikumar , O. H. Ibarra, Relating the type of ambiguity of finite automata to the succinctness of their representation, SIAM Journal on Computing, v.18 n.6, p 1022-1044
- 35 {35} M.O. RABIN, D. SCOTT, Finite automata and their decision problems. IBM Journal of Research and Development3 (1959) 2, 115-125.
- 36 William J. Sakoda , Michael Sipser, Nondeterminism and the size of two-way finite automata, Proceedings of the tenth annual ACM symposium on Theory of computing, p 1978, San Diego, California, United States
- 37 Erik Meineche Schmidt, Succinctness of descriptions of context-free, regular and deterministic languages., 1978
- 38 {38} C. E. SHANNON, J. MCCARTHY, Automata Studies. Princeton University Press, 1956.
- 39 {39} M. SIPSER, Lower bounds on the size of sweeping automata. J. Comput. Syst. Sci.35 (1987) 159-170.

(1980), 195-202.

40 Seppo Sippu, Eljas Soisalon-Soininen, Parsing theory. Vol. 1: languages
Verlag New York, Inc., New York, NY, 1988

41 {41} R. STEARNS, H. HUNNT, On the equivalence and containment pr
unambiguous regular expressions, regular grammars, and finite automata. SIA
(1985), 598-611.

42 Ken Thompson, Programming Techniques: Regular expression search al
Communications of the ACM, v.11 n.6, p.419-422, June 1968

43 {43} S. YU, A Renaissance of Automata Theory? Bulletin of the EATCS

↑ CITINGS

Galina Jirásková, State complexity of some operations on binary regular lang
Computer Science, v.330 n.2, p.287-298, 2 February 2005

↑ INDEX TERMS

Primary Classification:

F. Theory of Computation
↳ F.1 COMPUTATION BY ABSTRACT DEVICES
 ↳ F.1.1 Models of Computation
 ↳ Subjects: Automata (e.g., finite, push-down, resource-bounded)

Additional Classification:

F. Theory of Computation
↳ F.1 COMPUTATION BY ABSTRACT DEVICES
 ↳ F.1.3 Complexity Measures and Classes
 ↳ Subjects: Complexity hierarchies

General Terms:

Theory

Keywords:

automata, descriptional complexity, regular languages

↑ Collaborative Colleagues:

Juraj Hromkovič: Pavol Duriš

Walter Unger

Hans-Joachim Böckenhauer

Dirk Bongartz

Katsushi Inoue

Stasys Jukna

Ralf Klasing

Guido Proietti

Martin Sauerhoff

Georg Schnitger

Sebastian Seibert

The ACM Portal is published by the Association for Computing Machinery
ACM, Inc.

[Terms of Usage](#) [Privacy Policy](#) [Code of Ethics](#) [Contact](#)

Useful downloads:  [Adobe Acrobat](#)  [QuickTime](#)  [Windows Media Player](#)